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The Rev. Samuel Haughton, M.A., Professor of Geology in the University of Dublin, read a Paper on the chemical composition and optical properties of the Mica of the Dublin, Wicklow, and Carlow granites.

"The minerals included in the mica family may be divided into various groups, founded on their chemical composition and optical properties.

"Chemically considered, they are divided by Rammelsberg and others into three families :—

1. Potash mica.
2. Lithia mica.
3. Magnesia mica.

"Optically considered, they are divided into three groups also :—

1. Biaxial micas, the angle between the optic axes being from 44° to 75°.
2. Biaxial micas, with angle between optic axes from 5° to 20°.
3. Biaxial and uniaxial micas, with angle between optic axes from 5° to 0°.

"The first optical group includes the potash and lithia micas of the chemical division, while the third chemical group, or Magnesia mica, is divided between the second and third optical groups; the second group being usually designated Phlogopite, and the third Biotite. The potash and lithia micas are considered by Rammelsberg as represented by the following general formula—

$$m(RO,\ SiO_3) + n(R_2O_3,\ SiO_3)$$

in which formula, in the potash micas

$$m = 1$$
$$n = 2,\ 3,\ \text{or}\ 4.$$

"The last two cases, $n = 3$ and $n = 4$, being the Muscovite of mineralogists, and the first, $n = 2$, or

$$ROSiO_3 + 2(R_2O_3SiO_3) + kHO$$

being known as Margarodite.

" The Micas of the Dublin, Wicklow, and Carlow granites, analyzed by me, belong to the Margarodite genus, and contain two atoms of water, corresponding to $k = 2$.

" The following are the analyses of three micas selected from three distant localities of the granite chain of the south-east of Ireland.

" No. 1. Mica from the Three-Rock Mountain, county of Dublin; gray, transparent, containing specks or flakes of a bronze-coloured or black mica.

	Per Cent.	Atomic Quotients.			
Silica,	43·47	0·959		2·863	3
Alumina,	31·42	0·611	0·670	2·000	2
Peroxide of iron,	4·79	0·059			
Lime,	1·38	0·049	0·379	1·131	1
Magnesia,	1·13	0·056			
Potash,	10·71	0·228			
Soda,	1·44	0·046			
Loss by ignition,	5·43	0·603		1·800	2
	99·77				

" No. 2. Mica from Glendalough valley, county of Wicklow, gray, transparent, with specific gravity = 2·793.

	Per Cent.	Atomic Quotients.			
Silica,	44·71	0·987		2·973	3
Alumina,	31·13	0·606	0·664	2·000	2
Peroxide of iron,	4·69	0·058			
Lime,	1·09	0·035	0·332	1·000	1
Magnesia,	0·90	0.045			
Potash,	9·91	0·211			
Soda,	1·27	0·041			
Loss by ignition,	6·22	0·691		2·083	2
	99·92				

" No. 3. Mica from Mount Leinster, county of Carlow, gray, transparent.

	Per Cent.	Atomic Quotients.			
Silica,	44·64	0·970		2·913	3
Alumina,	30·18	0·587	0·666	2·000	2
Peroxide of iron,	6·35	0·079			
Lime,	0·00	0·000	0·298	0·900	1
Magnesia,	0·72	0·036			
Potash,	12·40	0·262			
Soda,	Trace,	0·000			
Loss by ignition,	5·32	0·591		1·774	2
	99·61				

"If we take the mean of these analyses we find—

Average Mica of Dublin, Wicklow, and Carlow Granite.

	Per Cent.	Atomic Quotients.		
Silica,	44·27	0·962		3
Alumina,	30·91	0·601	0·667	2
Peroxide of iron,	5·27	0·066		
Lime,	0·82	0·029	0·338	1
Magnesia,	0·92	0·046		
Potash,	11·01	0·234		
Soda,	0·90	0·029		
Loss by ignition,	5·66	0·629		2
	99·76			

"There can be little doubt, from the foregoing analyses, that the transparent gray Mica of the district under consideration is a Margarodite, having the rational formula

$$\mathrm{ROSiO_3 + 2(R_2O_3,\ SiO_3) + 2HO}.$$

The mica which deviates most from this formula is the mica of the Three Rock Mountain, and this deviation may possibly be due to the presence of grains of black mica, which also occurs in the mass of the granite, and of which I was unable to obtain a sufficient quantity for chemical or optical examination; the quantity of protoxides in the Three Rock mica is somewhat in excess of that required by the formula.

"The angles between the optic axes of these micas were carefully determined, and found to be as follows:—

Angles between Optic Axes of Micas.

1.	Three Rock mica,	53°	8′
2.	Glendalough mica,	70	4
3.	Mount Leinster mica,	72	18
4.	Lough Dan mica,	70	0
5.	Glenmalure mica,	67	11

"I have added to the determination of angles of the micas analyzed the optic angles of two other specimens of gray, transparent mica from Lough Dan and Glenmalure, county of Wicklow.

"The four micas which were free from any intermixture of black mica have a high angle, while the angle between the optic axes of the mica from the Three Rock Mountain, which contained flakes of black mica, is nearly 20° less than that of the pure transparent gray micas.

"I think that the uniformity of the preceding analyses is sufficient to show that Margarodite is entitled to be considered as a distinct species of hydrated mica, and that it is not merely an altered form of Muscovite, an opinion advocated by Mr. Dana, in the last edition of his 'System of Mineralogy.'"

James Apjohn, M. D., made some remarks on Mr. Haughton's communication.

The Secretary read a letter from Mr. Hornsby, Secretary to the Board of Works, presenting to the Academy Museum the following articles:—

1. A small wooden bucket or situla, bound with bronze hoops, having perforated lozenge patterns.
2. Ornamented bead, composed of blue glass, with bands of red and white glass.
3. Bone bead or ornament.
4. Fragments of bone comb.
5. Neck and handles of an earthen jar.